

# MARSHALL STAR

Serving the Marshall Space Flight Center Community

Oct. 29, 2009

## Successful flight test for Ares I-X

*From a NASA news release*

NASA's Ares I-X test rocket lifted off at 10:30 a.m. CDT Oct. 28 from NASA's Kennedy Space Center in Florida for a two-minute powered flight. The test flight lasted about six minutes from its launch from the newly modified Launch Complex 39B until splash down of the rocket's booster stage nearly 150 miles down range.

The Marshall Space Flight Center, with contractor support, provided management for the development of Ares I-X avionics, roll control and first stage systems.

"This was fantastic!" said Steve Davis, Ares I-X deputy mission manager at Marshall. "Seeing that rocket clear the tower was pure elation. So many great people have dedicated so much of their lives to this over the last few years. I'm very proud of

*See Ares I-X on page 2*



Ares I-X launches Oct. 28 from the Kennedy Space Center.

## Marshall completes ISO audits

### *Recertification expected for Quality, Environmental Management Systems*

*By Rick Smith*

The Marshall Space Flight Center has successfully completed its National Quality Assurance triennial audit – and is expected to be recommended for recertification for both its Quality Management System and Environmental Management System.

This was the fourth triennial audit for Marshall's Quality Management System, ISO 9001/AS9100, and the first

for the Environmental Management System, ISO 14001. Both audits were conducted Oct. 13-16.

No major issues and only a few minor nonconformances were reported, said Mary DeMurray, a Bastion Technologies quality engineer supporting Marshall's Safety & Mission Assurance Directorate.

Marshall will receive a new ISO 14001:2004 certificate in coming months, DeMurray said. Once auditors verify completion of ISO 9001/AS9100 corrective actions, that

*See Audit on page 5*

## *FASTSAT instruments shipped to Marshall for tests, launch preparation*

*From a NASA news release*

Three of the satellite instruments that will fly on an upcoming satellite mission called "FASTSAT" have been created at one NASA center and have arrived at another for more tests to ensure they are flight ready for launch. They're now at the Marshall Space Flight Center for further testing.

"FASTSAT" means Fast, Affordable,

*See FASTSAT on page 6*

# Director's Corner

## Ares I-X 'demonstrates our grace under fire'

I'm down at the Cape for the launch of Ares I-X and the STS-129 Flight Readiness Review. Thanks to our Ares and Shuttle teams for getting us here! It is pretty exciting to see the Ares I-X on one launch pad and the Space Shuttle stack on the other.

The launch of Ares I-X is the first flight test of a new NASA vehicle design at KSC in more than 30 years, and one of the first steps towards sustained human exploration beyond Earth orbit. The data from this test will continue to validate our modeling and simulation capability.

This launch is an important milestone for the NASA team. Not only does it demonstrate our ability to design, build and process a new launch vehicle, but it also demonstrates our grace under fire. It shows that we can deliver what we've

been asked to do under conditions that would derail lesser teams.

To say that I'm proud of the amazing job you are doing would be an understatement.

At our September All-Hands I talked about the "noise" level. I recognize the angst being created by what's being written in the newspapers and in blogs. When we get together for our All-Hands next week, we'll talk about the final report of the Augustine Committee and anything else that is on your minds.

Until then, I want you to know two things:

First – regardless of what the newspapers and blogs suggest, no decisions have been made relative to changes in direction.

Second – I promise you that we will be engaged in any decisions being made. We have a cross-organizational team meeting weekly here at Marshall,

and I'm participating with other Center Directors in cross-Agency meetings at headquarters. We're all working to shape the best possible outcomes for us as a Center and as an Agency.

So stay focused on the mission, and I'll let you know as new information becomes available.

Again, thank you again for an amazing job – and I'll see you at our All-Hands next week!



**Robert Lightfoot**  
**Marshall Center Director**

## Ares I-X *Continued from page 1*

our Marshall team and their contribution."

"This is a huge step forward for NASA's exploration goals," said Doug Cooke, associate administrator for the Exploration Systems Mission Directorate at NASA Headquarters in Washington. "Ares I-X provides NASA with an enormous amount of data that will be used to improve the design and safety of the next generation of American spaceflight vehicles – vehicles that could again take humans beyond low Earth orbit."

The 327-foot-tall Ares I-X test vehicle produced 2.6-million pounds of thrust to accelerate the rocket to nearly 3 g's and Mach 4.76, just shy of hypersonic speed. It capped its easterly flight at a sub-orbital altitude of 150,000 feet after the separation of its first stage, a four-segment solid rocket booster.

Parachutes deployed for recovery of the booster and the solid rocket motor will be recovered at sea for later inspection. The simulated upper stage, Orion crew module and launch abort system will not be recovered.

"The most valuable learning is through experience and observation," said Bob Ess, Ares I-X mission manager. "Tests such as this – from paper to flight – are vital in gaining a deeper understanding of the vehicle, from design to development."

The flight offered an early opportunity to test and prove hardware, facilities and ground operations – important data for future space vehicles. During the flight, a range of performance data was relayed to the ground and also stored in the onboard flight data recorder. The 700 sensors mounted on the vehicle provide flight test engineering data to correlate with computer models and analysis. The rocket's sensors gathered information in several areas, including assembly and launch operations, separation of the vehicle's first and second stages, controllability and aerodynamics, the re-entry and recovery of the first stage and new vehicle design techniques.

For information about Ares I-X, visit <http://www.nasa.gov/aresIX>.



# Cheering on the Combined Federal Campaign!

## *Oct. 27 CFC rally, volunteer events draw hundreds to support community, charities*

*By Rick Smith*

Wet weather and preparations for NASA's Ares I-X rocket launch did not stop hundreds of Marshall Space Flight Center team members from crowding into Morris Auditorium in Building 4200 Oct. 27 for the center's annual Combined Federal Campaign rally.

Marshall Center Associate Director Robin Henderson welcomed team members – and drew a roar of approval when she announced the center's most recent donation totals: more than \$232,600 in contributions since the 2009 campaign began Sept. 30.

Volunteers from Marshall also have helped sign up some 1,400 needy families and seniors for the Salvation Army's "Angel Tree" program, Henderson reported. She praised dozens of team members who supported the 43rd annual Alabama Special Olympics track and field event Oct. 20 at Milton

Frank Stadium in Huntsville.

The Marshall Center's goal for 2009 is to raise \$625,000 for the Tennessee Valley CFC effort.

The campaign will run through Dec. 11.

"I have no doubt we will reach and exceed that goal," Henderson told the rally audience. "The hearts of Marshall employees are always open for those in need."

Henderson introduced a video greeting from Center Director Robert Lightfoot, who was at the Kennedy Space Center, Fla., for the Ares I-X launch.

"Year after year, the Marshall team is out front in supporting our community and demonstrating concern for those who need our help," Lightfoot said in his message. "When you consider the scope of this campaign, you might think your contribution is not meaningful. But whether you're able to give a little or a lot, it's the very act of thousands of us giving that makes it possible for charitable agencies to continue their work."

"I thank you for your help in the past



Rita James, a co-op in Marshall's Office of Procurement, was among dozens of Marshall volunteers who lent a hand – and cheered for participants – at the Alabama Special Olympics Oct. 20 at Milton Frank Stadium in Huntsville.

and look forward to a great campaign this year," he added.

John Sweeney, regional director of the Make-A-Wish Foundation of Georgia and Alabama, was the featured speaker. He praised the Marshall Center's past contributions and reminded audience members of the difference they can make in the lives of others.

The Madison Academy singing group LifeStep and the Madison County High School cheerleaders performed during the rally.

Volunteers are still needed to support a variety of CFC Community Service Days events, and slots are open for numerous bus tours of local charitable organizations. Visit [http://inside.msfc.nasa.gov/announcements/cfc\\_info.html](http://inside.msfc.nasa.gov/announcements/cfc_info.html) for details.

*Smith, an AI Signal Research Inc. employee, supports the Office of Strategic Analysis & Communications.*



John Sweeney, regional director of the Make-A-Wish Foundation of Georgia and Alabama, addresses the CFC rally.

# NASA managers to meet Oct. 29 to set Atlantis' launch date

By Sanda Martel

NASA will hold a flight readiness review Oct. 29 to assess space shuttle Atlantis' preparedness to launch on the STS-129 mission to the International Space Station. The launch date will be announced at the conclusion of the review, which is being held at the Kennedy Space Center, Fla.

NASA is targeting Nov. 16 at 1:28 p.m. CST for the launch.

The readiness review is a traditional meeting during which top NASA and contractor managers set launch dates by determining if the shuttle's complex array of equipment, support systems and procedures are ready for flight. They also assess any risks associated with the mission.

Steve Cash, manager of the Space Shuttle Propulsion Office at the Marshall Space Flight Center, said the propulsion elements are "ready to launch space shuttle Atlantis into orbit." Cash and his team manage the space shuttle main engines, external tank and reusable solid rocket boosters.

The STS-129 mission will be commanded by Charles O. Hobaugh and piloted by Barry E. Wilmore. Mission Specialists are Robert L. Satcher Jr., Mike Foreman, Randy Bresnik and Leland Melvin. Wilmore, Satcher and Bresnik will be making their first trips to space on this mission. Atlantis also will return space station crew member Nicole Stott to Earth. Stott launched Aug. 28 with space shuttle Discovery's STS-128 crew.

The mission will focus on storing spare hardware on the exterior of the International Space Station. The 11-day flight will include three spacewalks and the installation of two platforms to the station's truss, or backbone. Known as ExPRESS Logistics Carriers 1 & 2, the platforms will hold

spare parts to sustain station operations after the shuttles are retired. Each carrier is capable of holding up to 9,800 pounds. Carriers will hold items such as spare gyroscopes to help maintain the station's attitude in orbit; nitrogen tank assemblies to pressurize the station's ammonia cooling system; pump modules for pumping ammonia from a tank through cooling line in the truss. Ammonia is used to move excess heat from inside the station.

Two additional carriers will be delivered on upcoming space shuttle missions.

STS-129 will be the fifth space shuttle mission to fly in 2009. Other missions in 2009 included STS-119, March 15-28; STS-125, May 11-24; STS-127, July 15-31; and STS-128, Aug. 28-Sept. 11.

After STS-129, the missions remaining to be flown to complete the International Space Station, and their targeted launch dates, are STS-130, Feb. 4, 2010; STS-131, March 18; STS-132, May 14; STS-134, July 29; and STS-133, Sept. 16.

For more information about the STS-129 mission, visit [http://www.nasa.gov/mission\\_pages/shuttle/main/index.html](http://www.nasa.gov/mission_pages/shuttle/main/index.html).

*Martel, an AI Signal Research Inc. employee, supports the Office of Strategic Analysis & Communications.*



The STS-129 crew includes, front row from left, Commander Charles O. Hobaugh and Pilot Barry E. Wilmore; back row from left, Mission Specialists Leland Melvin, Mike Foreman, Robert L. Satcher Jr. and Randy Bresnik.

## Obituaries

**Fred Digesu**, 87, of Huntsville died Sept. 19. He retired from the Marshall Center in 1981 as an aerospace engineer supervisor. He is survived by his wife, Ann Digesu.

**Johnie Brothers**, 88, of Arab died Sept. 20. He retired from the Marshall Center in 1978 as an electronics technician.

**Frederick Marion Sittason**, 82, of Decatur died Sept. 21. He retired from the Marshall Center in 1981 as an engineer.

He is survived by his wife, Marian Watson Sittason.

**Charles Dean**, 88, of Lacey's Spring died Oct. 8. He retired from the Marshall Center in 1981 as an aerospace engineering technician. He is survived by his wife, Johnnie Mae Dean.

**Maxine Adkins**, 83, of Guntersville died Oct. 12. She retired from the Marshall Center in 1977 as a secretary.



## 'Launching Conversations'

# Marshall Center Director Robert Lightfoot uses new medium to communicate with team members

By Rick Smith

Marshall Space Flight Center Director Robert Lightfoot has created a new video blog site, "Launching Conversations," designed to provide a forum where Marshall team members can generate conversations, discuss issues and keep abreast of events around the center and across NASA.

Anchoring the site, <https://conversation.msfc.nasa.gov>, are Lightfoot's video blogs, which have introduced the new site and solicited questions and input from Marshall team members.

Lightfoot began blogging in early October.

"Our goal is to generate virtual conversation between Robert, his administrative team and the Marshall work force, providing his insight into their questions and concerns, and

offering a frank, timely commentary on the NASA news of the day," said Dan Schumacher, director of the Office of Strategic Analysis & Communications.

"Robert is very committed to communicating with employees," Schumacher added. "This video blog series is a new way to engage the director on a relatively frequent basis, increasing his accessibility to every Marshall team member, and in turn, increasing their awareness of where Marshall is headed and what we're doing to accomplish NASA's mission."

New video blog entries by Lightfoot are expected "every couple weeks," Schumacher said. Team members are encouraged to frequent the site regularly for written updates and conversation with Marshall colleagues.

Conversation generated by questions or comments on the blog site often may drive the content of future video installments and other employee communications, Schumacher said.

All Marshall Center team members are encouraged to sign in and post comments and topics they'd like Lightfoot to address.

The blog site is operated by the Office of Strategic Analysis & Communications and the Marshall Center's Office of the Chief Information Officer.

*Smith, an AI Signal Research Inc. employee, supports the Office of Strategic Analysis & Communications.*

## Audit *Continued from page 1*

certification also will follow. The current ISO 9001/AS9100 certificate is valid through May 2010.

NQA auditors wrote in their assessment report that the Marshall Center demonstrates "strong evidence of management commitment as well as a sense of work force pride and ownership in the performance of work."

"The results of these audits bear out what has long been self-evident – that safety, quality and job performance are exemplified by this team," said Marshall Center Associate Director Robin Henderson, who serves as the center's ISO 9000 management representative.

Allen Elliott, supervisor of the Environmental Engineering & Occupational Health Office within Marshall's Office of Center Operations, is the ISO 14001 management representative for the center.

"I am proud of our work force, who tirelessly strive to fulfill their mission, to deliver the highest-quality products and services, and to keep our workplace and our environment safe," Henderson said.

The Marshall Center's Quality Management System is designed to provide quality products and services to our customers and partners through the NASA values: safety, excellence, teamwork and integrity. The Environmental Management System evaluates and manages all potential

environmental ramifications of Marshall Center operations and assists in prioritizing issues, monitoring performance improvements and minimizing environmental impact wherever possible.

With headquarters in Acton, Mass., and offices all over the world, NQA provides registration to a wide variety of quality management system standards and environmental system standards.

The International Organization for Standardization, or ISO, is the world's largest developer and publisher of international standards, comprised of a network of the national standards institutes of 162 countries.

ISO 9001 and ISO 14001 are generic management systems standards for quality and environmental managements systems. AS9100 is a quality management system standard based on ISO 9001, developed by the Society for Automotive Engineers to be used by organizations in the aerospace industry.

The next surveillance audit is scheduled for April 2010.

For more information, visit "Inside Marshall" at <http://inside.msfc.nasa.gov> and click on the "ISO 9000" link or visit the Environmental Engineering and Occupational Health Office Web site at <http://co.msfc.nasa.gov/ad10/index.html>.

*Smith, an AI Signal Research Inc. employee, supports the Office of Strategic Analysis & Communications.*

Science and Technology Satellite. The satellite was created at Marshall with the Von Braun Center for Science and Innovation in partnership with Dynetics, both located in Huntsville.

The development, integration, test and operations of the three instruments is a collaborative effort between the Marshall Center, NASA's Goddard Space Flight Center in Greenbelt, Md., and the U.S. Naval Academy in Annapolis, Md. The instruments were built at Goddard and already went through some tests in a vacuum chamber that simulated the vacuum of space.

The instruments include the TTI – or Thermosphere Temperature Imager – that will measure spacecraft drag; the Mini-ME – or Magnetospheric Miniature Imager for Neutral Ionospheric Atoms and Magnetospheric Electrons Instrument – which is a low-energy neutral atom imager that will detect neutral atoms formed in the plasma population of the Earth's outer atmosphere to improve global space weather prediction; and PISA – or Plasma and Impedance Spectrum Analyzer – that will test a new measurement technique for the thermal electron populations in the ionosphere and their density structuring, which can interfere with or scatter radio signals used for communication and navigation.

"Engineers at Marshall will test TTI, Mini-ME and PISA to ensure they can withstand the vibrations of launch and the frigid temperatures in space," said Marshall's FASTSAT Project Manager Mark Boudreaux.

The instruments are part of long-standing partnership between Goddard and the U.S. Naval Academy. The academy's midshipmen have assisted with development and systems integration of instruments, and will be involved in the payload commanding and data analysis.

Past activities involve instrument spacecraft integration such as vibration testing and analysis of instrument data including analysis of theoretical instrument response. These activities complement the academy's engineering and science curriculum. "This continues educational outreach activities between Goddard and the academy, spanning 15 years and building on NASA experience with the academy's MidSTAR-1 satellite in which several NASA experiments

successfully flew," said Commander David Myre of the Aerospace Engineering Department at the academy.

The TTI will provide the first global-scale measurements of thermospheric temperature profiles in the 124-248 mile region. The temperature profile sets the scale height of the thermosphere, which determines the density at orbital altitudes, and therefore, the aerodynamic drag experienced by military spacecraft.

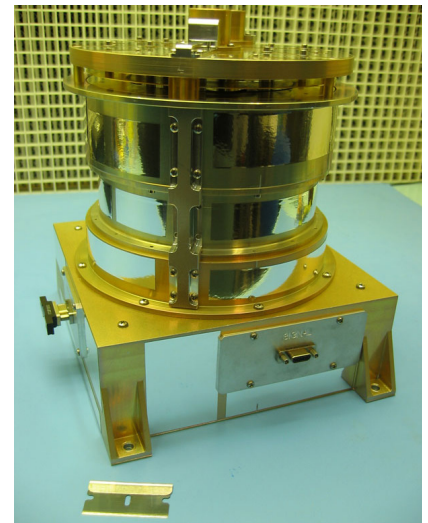
"The Mini-ME instrument is a low energy neutral atom imager," said Michael Collier, principal investigator of Mini-ME at Goddard. "Low-energy neutral atom imaging is a technique first pioneered at Goddard that allows scientists to observe remotely various trapped charged particle populations around Earth that we would normally only be able to observe in-situ – or exactly where an instrument is. It's an improvement on the same kind of instrument, the Low Energy Neutral Atom, that flew on the Imager for Magnetopause to Aurora Global Exploration satellite mission. Measurements made by instruments like Mini-ME will enable more accurate prediction of space weather."

PISA is the third instrument on FASTSAT. "PISA will determine when and where the ionosphere becomes structured or turbulent, permitting better predictive models of space weather effects on GPS signals," said Doug Rowland, principal investigator of PISA at Goddard.

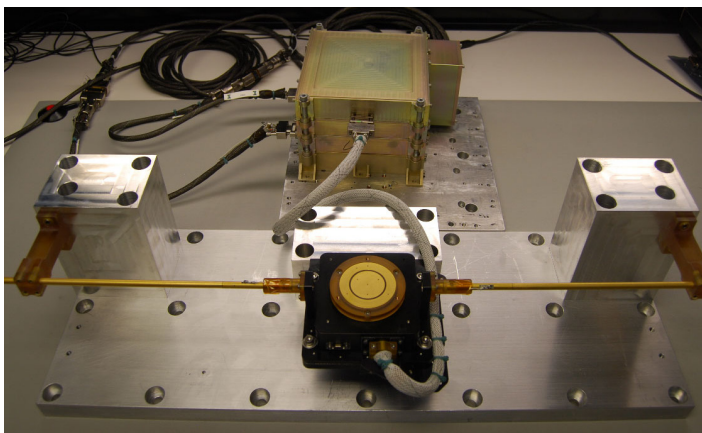
Collier said, "Although the three instruments are stand-alone experiments, the FASTSAT project currently plans at times to operate all three instruments simultaneously in flight. This will allow the three Goddard investigators to use the information from the other two instruments to better understand their own data."

"The instruments are a collaborative effort between the Naval Academy and Goddard, allowing midshipmen to work side-by-side with scientists and engineers, and providing them with unique experiences and training for the future Navy space cadre," Myre said.

FASTSAT will fly a total of six instruments approved by the U.S. Department of Defense Science and Experiments Review Board multi-spacecraft/payload mission named STP-S26. The STP-S26 is executed by the DoD Space Test Program at the Space Development and Test Wing in Kirtland Air Force Base, N.M., which is a unit of the Air Force Space and Missile Systems Center. The mission was designated S26 to correspond to the 26th small launch vehicle mission in STP's 40-plus-year history of flying DoD space experiments. The mission will launch four satellites and three cubesats into low-earth orbit.



Mini-ME instrument



PISA instrument

# Social media, networking seminar to be offered Nov. 5

By Amie Cotton

Heard of Twitter, Facebook, Delicious and Ning but not sure what they do or how to use them? Marshall Space Flight Center team members are invited to the "Social Media Initiatives/Networking 101" seminar, to be held Nov. 5 from 2-3:30 p.m. in Building 4200, Morris Auditorium.

Led by Kevin Jones, the social media/networking manager in Marshall's Office of the Chief Information Officer, the seminar will explain different tools used in social media and networking – Facebook, LinkedIn, Web 2.0 and others – and share pros and cons about communicating with them.

"We are moving toward enhancing communications, learning, knowledge management, networking with social media and networking Marshall-wide," said Jones. "Our vision is to open communications center-wide and offer employees the opportunity to stay better connected with a larger group of people."

Following the seminar, attendees can hone their experience by following Jones' personal blog – <http://EngagedLearning.net> – which will offer six weekly sessions providing greater detail about social media tools such as wikis, forums, RSS feeds and Facebook and Twitter accounts. "Hands-on learning by actually setting up accounts and using the tools will help Marshall employees become more comfortable using social media and to see how they can be used effectively at Marshall," added Jones.

"Social networking is a great benefit for Marshall employees," he said. "It creates an environment for employees to be connected with more people, draw experience from others and have access to more information – which in turn broadens their knowledge base, making them more productive, well-rounded employees."

Attendance is open to all Marshall employees. For more information on the seminar, contact Jones at 961-4350.

*Cotton, an AI Signal Research Inc. employee, supports the Office of Strategic Analysis & Communications.*

## Classified Ads

To submit a classified ad to the Marshall Star, go to Inside Marshall, to "Employee Resources," and click on "Employee Ads — Submit Ad." Ads are limited to 15 words, including contact numbers. No sales pitches. Deadline for the next issue, Nov. 5, is 4:30 p.m. Thursday, Oct. 29.

### Miscellaneous

4' x 8' folding tilt trailer with plywood deck, removable side rails, lights, \$250. 882-2776

Entertainment center, fold-back doors, concealed shelf, drawer for storage, \$100. 519-9326

Freezer, \$250. 684-6006

Wedding dress, \$750. 651-4723

Snapper high-vacuum riding mower, 30" cut, needs new 12.5 hp engine, \$100. 325-0085

Paintball auto loader, \$15; paintball full mask, \$15. 527-0110

Seagull S6-Original acoustic guitar, HS case, \$350. 550-0511

NordicTrack Spacesaver digital treadmill, \$400; World of Bob Timberlake cherry entertainment center, \$1,500. 653-7036

Liftmaster garage door opener, 1/3 horsepower, needs gears, \$25. 837-6776

Samsung 61" HD 1080i television, model HL-P6163W, \$550. 520-1970

PSE crossbow with Reddot scope, pictures available per e-mail, \$300. 509-2524

Antique school student desks, one blue, one pink, \$25 each or \$40 for both. 851-7406

Light oak dining room set, six chairs, leaf, Peacock pattern, \$400 firm. 698-6743

Bunk bed, twin upper futon, double lower, dark oak finish, \$650. 881-0551

Two twin-size mattresses, box springs, frames, \$175. 851-0893

Two Alabama vs. LSU football tickets, Nov. 7, lower-level section N-2, row 21. 230-0762

Phalzgraff Yorktowne stoneware, 10 five-piece settings, many miscellaneous pieces, baking dishes, platters, 78 pieces. 653-5799

Alabama print, "The Tradition Continues" signature edition,

shrink wrapped, \$395. 585-3594

Kohler sink, white, double basin, cast iron, Delta pullout faucet, \$100. 679-6676

### Vehicles

1999 Honda Accord LX sedan, silver, new tires/brakes/rotors, 118k miles, \$4,500. 797-0078

1997 Honda Accord, green, four door, automatic, power windows/doors, CD, alarm, 189k miles, \$2,500. 489-4483

1997 GMC Jimmy, SLE package, 4x4, green, loaded, options, 167k miles, \$3,200. 508-3257

1991 Honda xr250r dirt bike, 277 hop-up kit, \$850. 508-3257

Ford F-150 Lariat, \$15,900. 722-8064

### Wanted

Houses/offices to clean, available evenings/weekends, gift certificates available. 777-8595 leave message

Houses to clean or elderly to assist. 651-4723

### Free

Labrador Retriever, yellow, neutered adult male. 303-8499

### Found

U.S. currency, inside the door at the loading dock of Building 4200, Oct. 22. 544-4680



## Calling on a new generation of explorers

On Oct. 21, NASA Administrator Charles Bolden visited Lincoln Elementary School, the Huntsville Center for Technology, Columbia High School and New Century High School in Huntsville and Horizon Elementary School in Madison. At right, Bolden takes questions from students at Lincoln Elementary. He talked with students about the future of space exploration and encouraged them to pursue careers in science, technology, engineering and mathematics. The school visits were part of Bolden's two-day stop in Huntsville to share his education message and to discuss the U.S. space program with business leaders and residents across the Tennessee Valley.



Emmett Given/MSFC

## MARSHALL STAR

Vol. 50/No. 7

Marshall Space Flight Center, Alabama 35812  
256-544-0030  
<http://www.nasa.gov/centers/marshall>

The Marshall Star is published every Thursday by the Public and Employee Communications Office at the George C. Marshall Space Flight Center, National Aeronautics and Space Administration. Classified ads must be submitted no later than 4:30 p.m. Thursday to the Marshall Public and Employee Communications Office (CS20), Bldg. 4200, Room 102. Submissions should be written legibly and include the originator's name. Send e-mail submissions to: [intercom@msfc.nasa.gov](mailto:intercom@msfc.nasa.gov). The Star does not publish commercial advertising of any kind.

Manager of Public and Employee  
Communications: Dom Amatore  
Editor: Jessica Wallace

U.S. Government Printing Office 2009-623-044-00022

[www.nasa.gov](http://www.nasa.gov)

PRE-SORT STANDARD  
Postage & Fees PAID  
NASA  
Permit No. 298